

## SEARCHED

PN - JP2003282465 A 20031003  
 TI - METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE  
 AB - <P>PROBLEM TO BE SOLVED: To increase the plasma decomposition efficiency of a PFC gas.  
     <P>SOLUTION: In a wafer treatment chamber 41 of semiconductor manufacturing equipment 40 built into a CVD apparatus 40a, a film formation process is conducted on a wafer W2 by a CVD method. After film formation is finished, a PFC gas is supplied as cleaning gas into the wafer treatment chamber 41. An unconsumed portion of the PFC gas which has not been used for cleaning the inside of the wafer treatment chamber 41 is sent out to a plasma decomposition chamber 21 of a PFC gas removing apparatus 20. The prescribed quantity of an inert gas such as nitrogen is supplied into the plasma decomposition chamber 21 together with additional gases such as an oxygen and water steam, and the PFC gas is subjected to plasma decomposition under the presence of the inert gas. <P>COPYRIGHT: (C)2004,JPO  
 FI - B01D53/34&134E; B01J19/08&E; C23C16/44&J; H01L21/205+ZAB; H01L21/302&101H; H05H1/46&M  
 PA - HITACHI LTD; RENASAS NORTHERN JAPAN SEMICON  
 IN - KUBOTA TETSUYA  
 AP - JP20020086464 20020326  
 PR - JP20020086464 20020326  
 DT - I

## SEARCHED

AN - 2003-885126 [82]  
 TI - Manufacture of semiconductor device e.g. MISFET, involves plasma decomposition of perfluoro compound gas in presence of gas containing inert gas  
 AB - JP2003282465 NOVELTY - The manufacturing of semiconductor device involves plasma decomposition of perfluoro compound (PFC) gas in the presence of a gas containing inert gas.  
     - USE - For manufacturing semiconductor device, e.g. MISFET, EEPROM.  
     - ADVANTAGE - The manufacturing method provides improved plasma decomposition efficiency of PFC gas, and is eco-friendly.  
     - DESCRIPTION OF DRAWING(S) - The figure shows the explanatory drawing of the semiconductor manufacturing apparatus used for the manufacture of semiconductor device. (Drawing includes non-English language text).  
     - plasma decomposition chamber 21  
     - electrode 22  
     - high-frequency electric power unit 23  
     - semiconductor manufacturing apparatus 40  
     - chemical vapor deposition apparatus 40a  
     - (Dwg.2/8)  
 IW - MANUFACTURE SEMICONDUCTOR DEVICE MISFET PLASMA DECOMPOSE COMPOUND GAS  
     PRESENCE GAS CONTAIN INERT GAS  
 PN - JP2003282465 A 20031003 DW200382 H01L21/205 012pp  
 IC - B01D53/70 ;B01J19/08 ;C23C16/44 ;H01L21/205 ;H01L21/3065 ;H05H1/46  
 MC - L04-X  
     - U11-C15Q V05-F05C V05-F05E5 V05-F08X X14-F  
 DC - L03 U11 V05 X14  
 PA - (HITW) HITACHI HOKKAI SEMICONDUCTOR  
     - (HITA) HITACHI LTD  
 AP - JP20020086464 20020326  
 PR - JP20020086464 20020326

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I - H01L21/205 ;B01D53/70 ;B01J19/08 ;C23C16/44 ;H01L21/3065 ;H05H1/46

PA - HITACHI LTD;RENASAS NORTHERN JAPAN SEMICONDUCTOR INC

IN - KUBOTA TETSUYA

ABD - 20031205

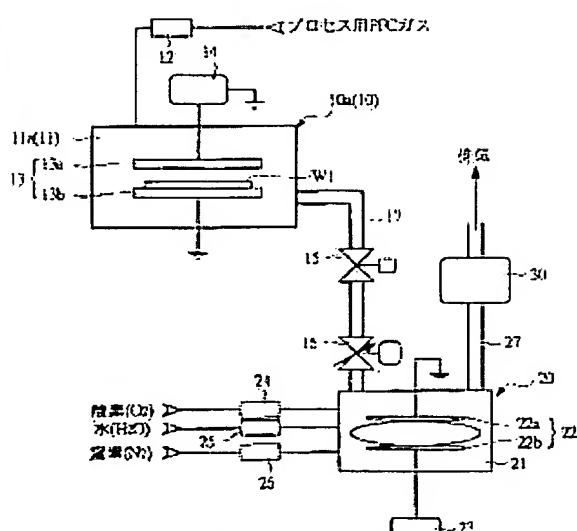
ABV - 200312

AP - JP20020086464 20020326

13 a	電極
13 b	電極
14	高周波電源
15	電磁弁
16	圧力調整弁
17	配管
20	PFCカス除去装置
21	プラズマ分解室
22	電極
22 a	電極
22 b	電極
23	高周波電源
24	流量制御装置
25	流量制御装置
26	流量制御装置
27	配管
30	真空ポンプ
40	半導体製造装置
40 a	CVD装置
41	ウオバ処理室
41 a	CVDチャンバー
42	サセブタ
43	シャワープレート
44	流量制御装置

13

四

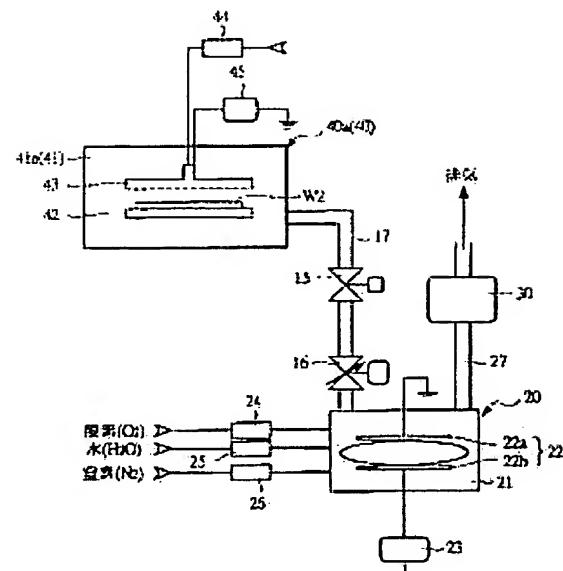


10: 半導体製造装置  
 10: ドライエッティング装置  
 20: ICリソース検査装置  
 21: プラズマ分解室  
 30: 真空チャンプ

＊ 4.5	高周波電源
	111 n-型非導体領域
	112 n'型半導体領域
	113 p 型半導体領域
	114 p'型非導体領域
	115 酸化シリコン膜
	116 素子分離
	117 p型ウエル
	118 n型ウエル
10	119 ゲート酸化膜
	121 多結晶シリコン膜
	122 窒化シリコン膜
	123 サイドウォールスベーザ
	124 酸化シリコン膜 (TEOS膜)
	125 コンタクトホール
	126 コンタクトホール
	127 ブラグ
	130 第1層配線
20	131 第1層配線
	132 第1層配線
	133 第1層配線
G	ゲート電極
	W1 ウエハ
W2	ウエハ
	ウエハ

【図2】

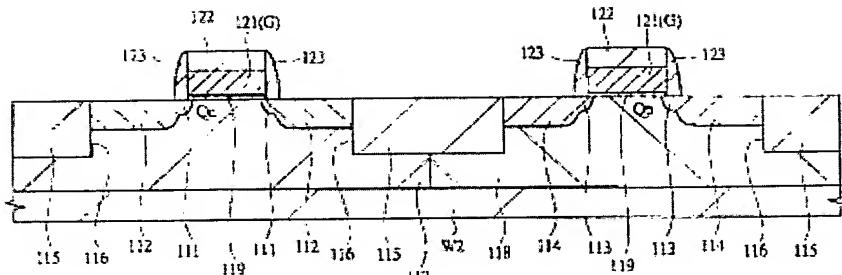
27 2



40: 半導體製造裝置  
40a: CVD装置

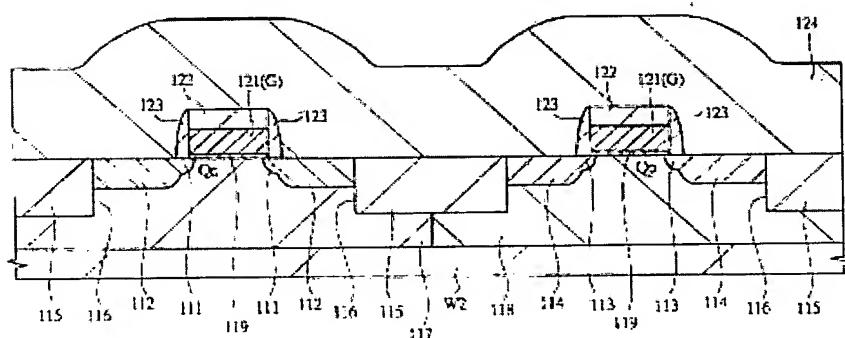
[図3]

図3



[図4]

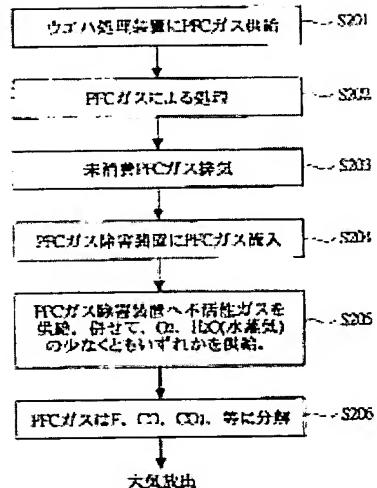
図4



[図5]

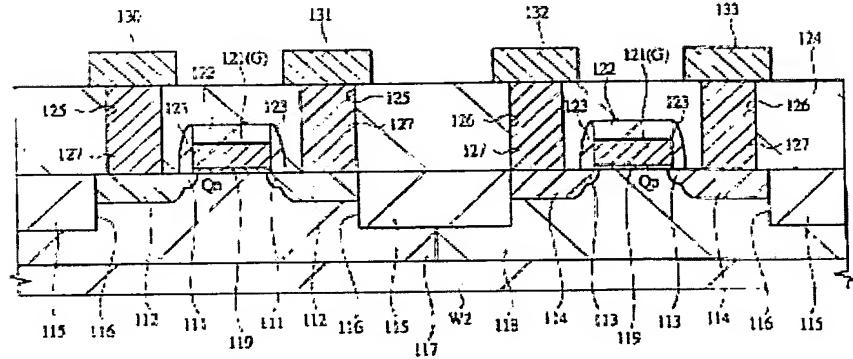
[図5]

図5



[図6]

図6

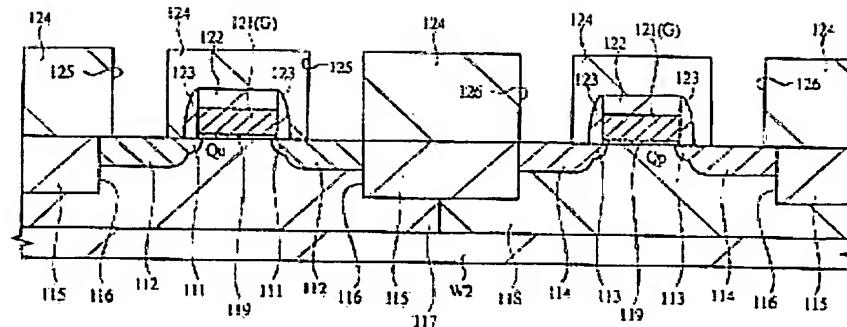


フロン1

(S1) Int H0

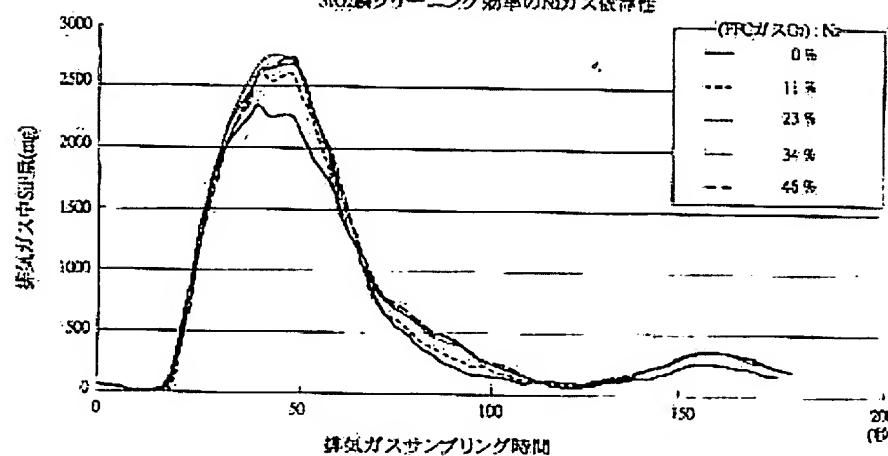
(図7)

図7



(図8)

図8

SiO<sub>2</sub>膜クリーニング効率のN<sub>2</sub>ガス依存性

フロントページの続き

(5)Int.CI.

H05月 146

識別記号

F1

B01D 53/34

トーラー (参考)

13年E

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